Separating the gold from the gravel

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Industry faces an immense challenge. To remain competitive, companies strive to reduce costs, even as they work to meet increasing government safety regulations and the demands of environmental organizations. Forced to "downsize," companies must now meet this challenge with fewer experienced employees.

Thousands of new products and technologies promise a solution. They are like the ore from a mine – some are gold, while others are merely gravel. How do you identify the best solution – how do you separate the gold from the gravel?

The best solutions are those that put people in charge of their own destinies. These "golden" tools give people concise information at appropriate times, so they can make correct decisions. Golden tools combine new ideas, like "corporate learning," with proven concepts, such as "information systems."

Corporate learning

Individual and corporate learning are not the same. Consider, for example, that you are part of a 1000 person organization. Individually, you learn a lesson when you put your hand on a hot stove. The organization, if it has no "corporate learning," will not learn the same lesson until 999 others have been burned. However, in an organization with corporate learning mechanisms, others learn from your experience, and are spared the pain.

Individual learning used to give companies a competitive edge. Now, all organizations have many individuals who learn well, because the brutal business environment has eliminated those who would not. Today, effective corporate learning differentiates one company from the others. Therefore, golden tools must support corporate learning.

Information management

Information systems of the past were termed "management information systems," because they provided information to "management." Those systems are inadequate today, for two reasons. First, it is clear that every person in a company, not just management, needs information. Second, the information base at most companies is now so large that its usefulness depends on effective management.

Information management systems deliver information to the right people at the right time, in a form that is easy to understand and use. These systems use "knowledge bases" and "inference engines," to sort out information that is important in a particular situation from millions of other pieces of information. Several years ago, Roger Harker, President of Bently Nevada, described it by originating the term "actionable information."

The millions of pieces of potentially relevant information probably do not reside at your plant site, or even within your company. That is why golden tools must not only create actionable information, but also communicate easily with other systems.

How should the system perform in your plant?

One method for estimating the requirements of a golden tool is to analyze how your current system works in critical situations, and to imagine how it might be improved. For example, suppose that an alarm occurs at 2:30 AM Saturday morning, due to high bearing temperature on a machine that is essential to a process. The machine operator decides that it may indicate a serious problem, so he telephones the plant's instrument maintenance and machinery maintenance personnel at their homes. They evaluate the data, and determine that the alarm was caused by a failing transducer.

The plant continues to run. Further investigation shows that the transducer had early warning "spikes" in its output several weeks prior to this event. The operator now has less trust in the instrumentation. The instrument maintenance personnel are annoyed with the transducer supplier, whose poor product quality literally gave them a "wake up call." The machinery maintenance personnel are especially upset. Once again, they scrambled to react to a crisis, yet the machine was just fine. However, deeper danger lurks in the future.

The operator may react to the next alarm with a little less urgency, as he thinks it is probably just faulty instrumentation. The machinery maintenance personnel may not even answer their phones.

How could it be improved?

The best solution to this problem would be a "never fail" transducer –an ideal that is perhaps not possible. However, golden tools that better facilitated information management and corporate learning could have helped.

A golden tool could have solved the problem weeks before the crisis, when the first spikes appeared in the transducer's output. At that time, the information system could have notified the instrument maintenance personnel of the unusual occurrence. In fact, the information system should have presented maintenance personnel with a real-time, "just when needed" troubleshooting guide. It should have given them complete, step-by-step instructions from the transducer supplier's database. The early warning signs, instead of going unnoticed, should have initiated a procedure for identifying and correcting the problem, long before it distracted operators with a false alarm.

The role of corporate learning

A golden tool would have helped the company calibrate its response, by making it easy for managers to incorporate the plant's experience and operating philosophy into its information system. At first, plant managers might have decided that the system should advise operators of all instrument problems, even if no action is required. Later, they may decide not to bother operators at all, unless they have an activity to perform. A golden tool would easily adapt to the plant's current methodology.

These tools are important for those outside the facility, too. As the transducer supplier's troubleshooting process improves, their information system should record the new knowledge, and make it available to customers "just when needed."

The fundamental role of a plant information management system is the same, whether it helps one to troubleshoot a transducer, prevent a pump from cavitating, or optimize the throughput of a compressor. The system must manage the plant's knowledge base, and provide effective information "just when needed." It must facilitate on-going corporate learning.

The good news: there is gold in today's information management tools. Many products now bring important information to the right people at the right time, to help companies run better.

As Bently Nevada Corporation carries out its mission - to help you protect and manage your machinery - each new generation of our information tools becomes even more useful. This issue of *Orbit* shows how these tools can help you to integrate Bently Nevada's information and data into your control system and plant information system. ■ **Bently Nevada has a patent application pending on this technology.**